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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,682	02/09/2004	Thomas Rueckes	112020.129 US2 (NAN-6)	9428
23483	7590	11/21/2006	EXAMINER	
WILMER CUTLER PICKERING HALE AND DORR LLP			COLEMAN, WILLIAM D	
60 STATE STREET			ART UNIT	
BOSTON, MA 02109			PAPER NUMBER	
			2823	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/774,682

Applicant(s)

RUECKES ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-7 and 9-15 is/are rejected.
- 7) ☒ Claim(s) 3 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on October 27, 2006 has been entered.

Claim Rejections - 35 USC § 102

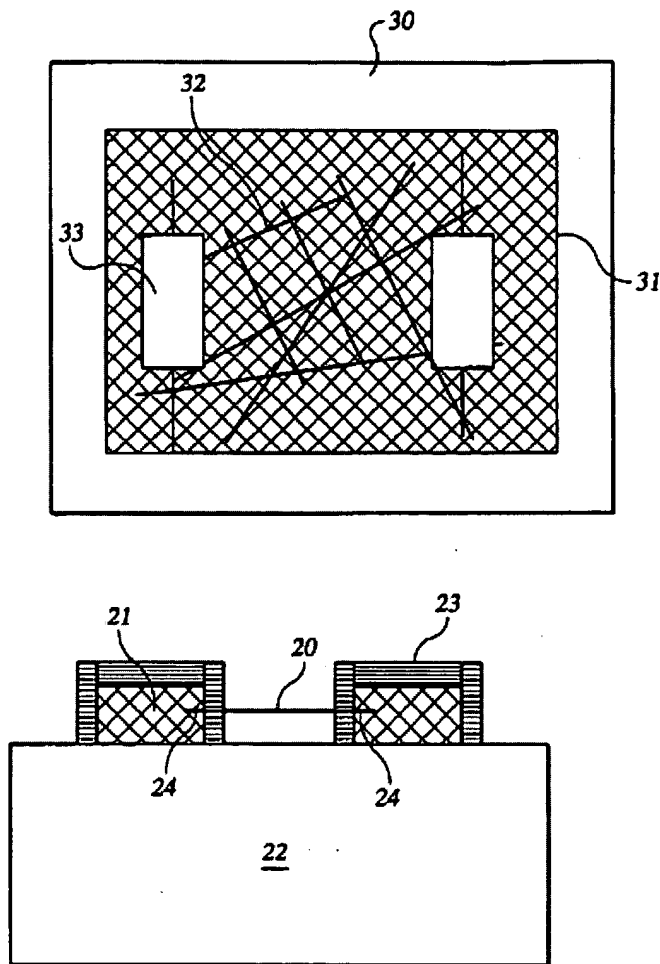
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-2, 4-7 and 9-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Dai et al., U.S. Patent 6,528,020 B1.



5. Pertaining to claim 1, Dai teaches an assembly including a substrate **30** and a conductive trace **32** on the substrate, wherein the trace includes a plurality of unaligned nanotubes for providing a plurality of conductive pathways along the trace (it is well known that carbon nanotubes are conductive, see column 4, line 17).

6. Pertaining to claim 2, Dai teaches the assembly of claim 1 wherein the nanotubes include single walled carbon nanotubes (Dai discloses a single wall nanotube in column 4, line 3).

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7. Pertaining to claim 4, Dai teaches the assembly of claim 1 wherein the nanotubes have different lengths (see FIG. 3B above).
8. Pertaining to claim 5, Dai teaches the assembly of claim 1 wherein the nanotubes include nanotubes having a length shorter than the length of the article (although not drawn to scale, it appears that the substrate is larger than the length of the carbon nanotubes).
9. Pertaining to claim 6, Dai teaches an assembly including a substrate 30 and a conductive trace 32 disposed on the substrate, wherein the trace includes an electrical network of a plurality of unaligned nanotubes in contact with other nanotubes to provide a plurality of conductive pathways along the trace (because the nanotubes comprise carbon, it is well known in the art that carbon nanotubes are conductive).
10. Pertaining to claim 7, Dai teaches the assembly of claim 6 wherein the nanotubes include single walled carbon nanotubes (column 4, line 3).
11. Pertaining to claim 9, Dai teaches the assembly of claim 6 wherein the nanotubes have different length (see the rejection of claim 4 above).
12. Pertaining to claim 10, Dai teaches the assembly of claim 6 wherein the nanotubes include a length shorter than the length of the ribbon (see **FIG. 3B**).

13. Pertaining to claim 11, Dai teaches an assembly including a substrate **30** and a conductive trace of predefined shape (see FIG. 1C), the conductive trace being over the substrate, the conductive trace including a plurality of unaligned nanotubes for providing a plurality of conductive paths along the extent of the trace.

14. Pertaining to claim 12, Dai teaches an assembly including a substrate, at least one metal electrode **33**, and a conductive trace of predefined shape, the conductive trace being over the substrate, the conductive trace including a plurality of unaligned nanotubes for providing a plurality of conductive paths along the extent of the trace, and the metal electrode being over at least a portion of the conductive trace, the metal electrode being formed by a metallization step (see FIGS. 1A-1C).

15. Pertaining to claim 13, Dai teaches a wafer substrate structure having a non-woven fabric of unaligned nanotubes substantially parallel to and covering a major surface of the wafer substrate and wherein the nanotubes of the fabric are arranged in accordance with inherent self-assembly traits of the nanotubes (see FIG. 1C).

16. Pertaining to claim 14, Dai teaches a wafer substrate structure having a non-woven fabric of unaligned nanotubes covering a major surface of the wafer substrate and wherein the fabric is substantially a monolayer of nanotubes.

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17. Pertaining to claim 15, Dai teaches a wafer substrate structure having a non-woven fabric of unaligned nanotubes substantially parallel to and covering a major surface of the wafer substrate and wherein the fabric has a controlled density of nanotubes (the Examiner takes the position that since the electrodes are adjacent to each other and the carbon nanotubes are making contact with the electrodes, the electrodes are substantially parallel to each other and therefore the nanotubes are substantially parallel).

Objections

18. Claims 3 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'W. David Coleman', with a stylized, looping flourish at the end.

W. David Coleman
Primary Examiner
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WDC